

WHAT IS CLAIMED:

1        1. A method for use in a node of a packet network, the method comprising the  
2 steps of:

3              replicating a packet for transmission over at least two diverse communications  
4 paths; and

5              multi-selecting a packet from at least two diverse communications paths.

1        2. The method of claim 1 wherein the packet is a signaling packet.

1        3. The method of claim 1 wherein the at least two diverse communications paths  
2 used for replicating and multi-selecting are the same.

1        4. The method of claim 1 wherein the replicating step utilizes an Internet Protocol  
2 (IP) for transmission over the at least two diverse communications paths.

1        5. The method of claim 1 wherein each replicated packet conveys an identical  
2 packet identifier.

1        6. The method of claim 1 wherein each replicated packet conveys an identical  
2 packet identifier in an additional shim header of a multiprotocol label switching (MPLS)  
3 packet.

1        7. A method for use in a node of a packet network, the method comprising the  
2 steps of:

3              identifying at least two diverse communications paths to an other node of the  
4 packet network; and

5              replicating a packet destined for the other node of the packet network for  
6 transmission over the at least two diverse communications paths.

1        8. The method of claim 7 wherein the packet is a signaling packet.

1        9. The method of claim 8 wherein the other node is a neighboring node in a

2 network topology of an underlying transport network.

1        10. The method of claim 8 wherein the replicating step includes the step of  
2 inserting a sequence number into the packet for use by the other node in receiving the  
3 replicated packets.

1        11. The method of claim 10 wherein the sequence number is inserted into an  
2 additional shim header of a multiprotocol label switching (MPLS) packet.

1        12. The method of claim 8 wherein the packet is formatted in accordance with an  
2 Internet Protocol (IP).

1        13. A method for use in a node of a packet network, the method comprising the  
2 steps of:

3            receiving multiple copies of a packet; and

4            selecting one of the received multiple copies of the packet as a function of a  
5 packet identifier in the received multiple copies of the packet.

1        14. The method of claim 13 wherein the packet is a signaling packet.

1        15. The method of claim 13 wherein the packet identifier is a sequence number  
2 value.

1        16. The method of claim 15 wherein the selecting step includes the steps of:  
2            if a value of the sequence number value of a received copy of the packet is less  
3 than a counter value, discarding the received copy; and  
4            if the value of the sequence number value of the received copy is equal to the  
5 counter value, accepting the received copy.

1        17. The method of claim 15 wherein the selecting step includes the steps of:  
2            if a value of the sequence number value of a received copy of the packet is less  
3 than a counter value, discarding the received copy; and  
4            if the value of the sequence number value of the received copy is not less than the

5 counter value, accepting the received copy.

1        18. A method for use in a node of a packet network, the method comprising the  
2 steps of:

3           establishing a pair of physically disjoint paths to an other node that is a  
4 neighboring node in a transport network; and

5           replicating a packet destined for the other node of the packet network for  
6 transmission over the pair of physically disjoint paths.

1        19. The method of claim 18 wherein the replicating step includes the step of  
2 inserting a sequence number into the packet for use by the other node in receiving the  
3 replicated packets.

1        20. The method of claim 19 wherein the sequence number is inserted into an  
2 additional shim header of a multiprotocol label switching (MPLS) packet.

1        21. The method of claim 18 wherein the packet is formatted in accordance with an  
2 Internet Protocol (IP).

1        22. A method for use in a node of a packet network, the method comprising the  
2 steps of:

3           establishing a pair of physically disjoint signaling paths to an other node that is a  
4 neighboring node in an underlying transport network; and

5           replicating a signaling packet destined for the other node of the packet network  
6 for transmission over the pair of physically disjoint signaling paths.

1        23. The method of claim 22 wherein the replicating step includes the step of  
2 inserting a sequence number into the signaling packet for use by the other node in  
3 receiving the replicated packets.

1        24. The method of claim 23 wherein the sequence number is inserted into an  
2 additional shim header of a multiprotocol label switching (MPLS) packet.

1           25. The method of claim 22 wherein the signaling packet is formatted in  
2 accordance with an Internet Protocol (IP).

1           26. A communications system comprising:

2           a number of nodes, each node storing at least two diverse communications paths  
3 to a neighboring node, wherein the neighboring node is determined as a function of a  
4 network topology of a transport network; and wherein each node, when transmitting a  
5 packet to the neighboring node, replicates the packet for transmission over the at least  
6 two diverse communications paths.

1           27. A communications system comprising a signaling network, the  
2 communications system comprising:

3           a number of nodes, each node storing at least two diverse communications paths  
4 to a neighboring node, wherein the neighboring node is determined as a function of a  
5 network topology of an underlying transport network; and wherein each node, when  
6 transmitting a signaling packet to the neighboring node, replicates the signaling packet  
7 for transmission over the at least two diverse communications paths.

1           28. A communications system comprising:

2           a number of nodes, each node of the network performing dual-feeding and dual-  
3 selecting of messages on diverse paths.

1           29. A communications system comprising a signaling network, the  
2 communications system comprising:

3           a number of nodes, each node of the signaling network performing dual-feeding  
4 and dual-selecting of signaling messages on diverse signaling paths.

1           30. A node for use in a network, the node comprising:

2           a memory for storing a routing table identifying at least two physically diverse  
3 communications paths to a neighboring node; and

4           a processor for causing a packet to be replicated for transmission over the  
5 identified at least two physically diverse communications paths to the neighboring node.

- 1        31. The node of claim 30 wherein the packet is a signaling packet.
- 1        32. The node of claim 30 wherein the packet is formatted in accordance with an  
2 Internet Protocol (IP).
- 1        33. The node of claim 30 wherein each replicated packet conveys an identical  
2 packet identifier.
- 1        34. The node of claim 30 wherein each replicated packet conveys an identical  
2 packet identifier in an additional shim header of a multiprotocol label switching (MPLS)  
3 packet.
- 1        35. A transmission frame representing a packet embodied in a transmission signal,  
2 the transmission frame comprising:
  - 3            a header; and
  - 4            a packet identifier value for use in discriminating between multiple copies of the  
5 packet.
- 1        36. The transmission frame of claim 35 wherein the packet identifier is conveyed  
2 in an additional shim header of a multiprotocol label switching (MPLS) packet.
- 1        37. A transmission frame representing a signaling packet embodied in a  
2 transmission signal, the transmission frame comprising:
  - 3            a signaling message for use in establishing a connection in an associated transport  
4 network; and
  - 5            a signaling packet identifier value for use in discriminating between multiple  
6 copies of the signaling packet.
- 1        38. The transmission frame of claim 37 wherein the signaling packet identifier is  
2 conveyed in an additional shim header of a multiprotocol label switching (MPLS) packet.